

*REMARKS/ARGUMENTS*

The amendments set out above and the following remarks are responsive to the points raised by the Office Action dated June 29, 2007. In view of the amendments set out above and the following remarks, reconsideration is respectfully requested.

*The Pending Claims*

Claims 2-6 have been cancelled, and claims 21-28 have been added, so that claims 1 and 7-28 are pending.

*Claim Objections*

Claims 6 and 16 were objected to on the grounds of various informalities. Claim 6 is cancelled, thereby obviating the objection to claim 6. Claim 16 is amended to recite materials that the catalyst material comprises, thereby obviating the rejection to claim 16.

*Rejections under 35 USC § 112, 2d paragraph*

Claims 7 and 16 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. Claim 7 has been amended to correct antecedent basis. Claim 16 is amended to recite materials which the catalyst material comprises. It is respectfully submitted that with these amendments to the claims, the indefiniteness rejections have been overcome and should be withdrawn.

*Rejections under §§ 102, 103*

Claims 1-4, 6, 10, and 11 were rejected under 35 USC § 102 as anticipated by U.S. Patent No. 5,925,156 to Motoki et al. (hereinafter, "Motoki").

Claim 5 was rejected under 35 USC § 103 as unpatentable over Motoki as applied to claim 2, and further in view of U.S. Patent No. 6,054,228 to Cisar et al. (hereinafter, "Cisar").

Claims 7 and 8 were rejected under § 103 as unpatentable over Motoki as applied to claim 1, and further in view of U.S. Patent No. 6,284,201 (hereinafter, "Buck").

Claim 9 was rejected under § 103 as unpatentable over Motoki as applied to claim 1, and further in view of U.S. Patent No. 3,925,248 to Moroni et al. (hereinafter, "Moroni").

Claims 12-13 were rejected under § 103 as unpatentable over Motoki as applied to claims 2 and 6, and further in view of U.S. Patent No. 5,242,472 to Sellakumar (hereinafter, "Sellakumar").

Claims 14-15 were rejected under § 103 as unpatentable over Motoki as applied to claims 2 and 6, and further in view of U.S. Patent No. 4,243,536 to Prölss (hereinafter, "Prölss").

Claims 16-20 were rejected under § 103 as unpatentable over Motoki as applied to claim 1, and further in view of U.S. Patent No. 4,350,613 to Nishino et al. (hereinafter, "Nishino").

Each of these rejections is separately and respectfully traversed.

Anticipation requires that the cited reference discloses each and every element of the claim. The anticipation rejection of amended claim 1 cannot be maintained because the cited reference, Motoki, does not teach every element of amended claim 1.

Amended independent claim 1 defines a filter element comprising, *inter alia*, a dimensionally stable porous ceramic formed body with a porous ceramic membrane layer over the ceramic formed body and a porous or perforated ceramic formed body insert. The ceramic formed body insert is spaced apart from the wall to provide an intermediate space that is filled with a bulk catalyst material or a bulk material that is coated with catalyst material.

Motoki does not teach a porous ceramic membrane layer over a ceramic formed body and a porous or perforated ceramic formed body insert, as claimed in amended claim 1. Motoki discloses a ceramic *or* metal filter 1a on a *metal* support 1b (col. 5, line 58 – col. 6, line 9). Because Motoki discloses ceramic and metal as *alternatives* for the filter 1a, Motoki makes a distinction between ceramic and metal. While Motoki discloses that the filter 1a can be metal or ceramic, Motoki does not disclose that the metal support 1b can be ceramic. Motoki, therefore, does not disclose a porous ceramic membrane layer over a *ceramic* formed

body, as claimed in amended claim 1. Accordingly, the anticipation rejection of amended claim 1 cannot be maintained.

The Office Action characterizes the filter portion 111 of Motoki as the claimed porous formed body 111 having a wall (Fig. 10A/B) and characterizes the support member 115 as the claimed porous or perforated formed body insert spaced from the wall. According to the Office Action, Motoki discloses that the formed body insert (support member) comprises a ceramic material or a metal at col. 5, line 58 to col. 6, line 9.

Motoki does not disclose that the support member 115 is ceramic. In fact, Motoki does not disclose what material the support member 115 is made of. The passage at col. 5, line 58 to col. 6, line 9 describes the composition of the main body 1 of the metal filter, not the support member 115. As shown in Figures 1A and 1B, the main body 1 of the filter includes filter portion 1a and support portion 1b (col. 3, lines 60-61). Motoki teaches that the filter portion 1a may be metal or *alternatively* ceramic, while the support portion 1b of the main body 1 is *metal* (col. 5, line 58 to col. 6, line 9). Motoki does not, however, teach that the support member 115 is ceramic. Therefore, because Motoki does not teach a ceramic body insert spaced from the wall, as claimed, the anticipation rejection of Motoki cannot be maintained.

Materials can expand and contract under high temperatures. Contraction and expansion of the formed body and body insert of a filter element can disrupt the uniformity of the packing of the catalyst material between the formed body and the body insert, which can disrupt the uniformity of the packed bed of bulk catalyst material and lead to channeling. Ceramic materials advantageously do not expand and contract as much as other materials under the application of heat. Therefore, providing a formed body and a body insert each of ceramic advantageously makes it possible to minimize the shifting of the bulk catalyst material under high temperatures that could form channels and reduce the efficiency of the filtration of the gas.

Moreover, different materials undergo differential expansion and contraction under high temperatures. Providing a formed body, membrane, and body insert of the same material advantageously minimizes or avoids differential expansion and contraction under

high temperatures, which in turn minimizes shifting and channeling of the bulk catalyst material.

New independent claim 21 is also not anticipated by Motoki. New claim 21 defines a filter element comprising, *inter alia*, a porous ceramic formed body with a porous membrane layer over the ceramic formed body. As explained above, Motoki fails to teach a porous ceramic formed body with a porous membrane layer over the ceramic formed body. Therefore, new claim 21 is also patentable over the cited references.

The filter element of the present invention is patentably distinct from that of Motoki for the reasons set forth above. The fact that Cisar may teach a plastic filter, Buck may teach ceramic fibers coated with catalytic material, Moroni may teach a foam plastic catalyst support material, Sellakumar may teach filtering elements open on both ends, or that Prölsß may teach disk shaped filter elements is of no importance to the patentability of the present claims. Cisar, Buck, Moroni, Sellakumar, and Prölsß simply do not cure the deficiencies of Motoki, and therefore, the combinations also fail to render the present invention obvious.

Since the independent claims are allowable for the reasons set forth above, the dependent claims are also allowable because they depend directly or ultimately from patentable independent claims.

### *Conclusion*

Applicants respectfully submit that the patent application is in condition for

allowance. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

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